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| 10/736,609 | 12/17/2003 | Manabu Serizawa | 118116 | 4082 |
| 25944 | 7590 | 12/14/2004 | EXAMINER | |
| OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320 | | | DOTE, JANIS L. | |
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DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/736,609

Applicant(s)

SERIZAWA ET AL.

Examiner

Janis L. Dote

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/17/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. The "abstract," which is listed with the Japanese Patent 06-250439, on the form PTO-1449 filed on Dec. 17, 2004, has been crossed-out by the examiner because the abstract describes European Patent 0613057, not JP 06-250439. However, applicants provided an explanation of relevancy of the Japanese patent at page 4, lines 8-12, of the instant specification. Accordingly, the examiner considered Japanese Patent 06-250439.

2. The disclosure is objected to because of the following informalities:

(1) There appears to be typographic errors throughout the specification. For example, at page 41, line 11, the typographic error "ore" in the phrase "one ore more" (emphasis added). This example is not exhaustive. Applicants should review the entire specification.

(2) The use of trademarks, e.g., Coulter Counter [sic: COULTER COUNTER] at page 54, line 13, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive. Applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be

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respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 and claims dependent thereon are indefinite in the phrase "polymerizing at least one kind of polymerization monomers having vinyl double bonds" (emphasis added) because it is not clear what is meant by the term "kind." It is not clear whether the term "kind" refers to a species of polymerization monomers having vinyl double bonds or some property associated with vinyl double bonds.

Claim 3 is indefinite in the phrase "heat-curable resin includes [sic] at least one of phenol resin and melamine

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resin" (emphasis added) because it is not clear whether the claim requires that the heat-curable resin compound comprises only one of the resins or a combination of both resins.

Claim 6 is indefinite in the phrase "external additives formed from simple substances" (emphasis added) because it is not clear what is meant by the term "simple substances." The instant specification at page 8, line 7, and page 41, lines 11-12, uses the term, but does not define it. (The examiner notes that the specification at page 39, line 21-23, discloses that it is "preferable to contain a single substance or mixture having two or more different average particle sizes as an external additive" (emphasis added).)

Claim 11 is indefinite in the phrase "releasing agent in an amount of 1 to 40% by weight" because it is not clear what is the basis of the "% by weight" (e.g., the total weight of the toner, the amount of binder resin, etc.).

5. Claim 3 is objected to because of the following informalities:

At line 2, the misspelling "incluludes".

Appropriate correction is required.

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6. The examiner has interpreted the phrase "% by weight" recited in instant claim 11 as being based on the total weight of the toner particles. Rejections based on this interpretation are set forth infra.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f), or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 2, 4, 7, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,968,701 (Onuma) combined with US 5,501,881 (Fuller), as evidenced by Webster's New World Dictionary, 3rd College edition, page 1165.

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Onuma discloses an image forming method comprising the steps of: (1) forming an electrostatic latent image on the surface of an electrostatic image-bearing member (photosensitive member); (2) developing the latent image with a magnetic toner; (3) transferring the toner image from the photosensitive member to a recording paper; and (4) fixing the toner image to the recording paper by contacting the toner image with a heat-pressure roller which contains a heater. Col. 24, line 52, to col. 25, line 18, and Fig. 4, reference sign 7. Onuma teaches that the magnetic toner comprises binder resin 1, magnetic particles as the colorant, and 3 wt% of polyethylene wax 1, based on the total weight of the magnetic toner particles. Example 1, col. 35. Polyethylene wax 1 has a melting point of 77°C, which is within the range of the releasing agent melting point of 40 to 100°C recited in instant claim 11. The amount of polyethylene wax 1 was determined by the information provided in example 1 at col. 35, lines 5-15. The amount of polyethylene wax 1 is within the range of 1 to 40% by weight recited in instant claim 11. Binder resin 1 comprises a polymer obtained by polymerizing monomers of styrene and n-butylacrylate, copolymer A, and copolymer D. Copolymer D is obtained by polymerizing monomers of styrene, n-butylacrylate, and monobutylmaleate. Monobutylmaleate comprises a carboxyl

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group. See binder synthesis example 1 at col. 29, and copolymers A and D in copolymer synthesis examples 1 and 4 at col. 28. Thus, the Onuma binder resin is within the binder resin limitations recited in instant claims 1 and 10.

Onuma does not explicitly disclose that the toner in example 1 has a storage elasticity G' at 180°C in the range of 1,000 to 8,000 Pa as recited in instant claim 1. However, Onuma discloses that the toner in example 1 has a visco-elastic storage modulus G' at 190° of 4,000 Pa and a visco-elastic storage modulus G' at 160°C of 3,700 Pa. Table 1 at col. 43, example 1; col. 35, lines 32-34; and Fig. 1. The Onuma storage moduli were determined by conditions that appear to be similar to the conditions used to determine the instantly claimed storage elastic modulus. Onuma, col. 7, lines 8-25; and the instant specification, page 55, lines 6-17. The storage modulus values of 4,000 Pa and 3,700 Pa are within the ranges of 1,000 to 8,000 Pa and 3,000 to 8,000 Pa recited in instant claim 1 and claims 7 and 12, respectively. As shown in Fig. 1 of Onuma, the storage modulus at 180°C appears to be between the values of 3,700 Pa and 4,000 Pa. Thus, the toner in example 1 of Onuma has an elastic storage modulus G' at 180°C that meets the storage elasticity G' ranges recited in instant claims 1, 7, and 12.

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Onuma does not disclose that the surface of its heat pressure roller has a contact angle to water at 25°C in the range of 50 to 100°C as recited in instant claim 1. However, Onuma does not limit the type of coating on the heat pressure roller. Col. 25, lines 16-17.

Fuller teaches a fuser roller comprising a metal roller and a resin layer on the metal roller. The resin layer comprises a heat-curable fluoroelastomer and an aliphatic alcohol, which has a layer thickness ranging from 6 to 8 mils. Example 1 at cols. 6-7. Fuller discloses that the "[a]dvantages of the fuser members of the present invention include avoiding or minimizing offsetting of molten toner image during fusing processes required to fix toner images to paper and plastic, improved fusing latitude, reduction in offsetting from preprinted forms, high thermal conductivity, and providing a high water contact angle, for example, between 90 to 95°, to release surface in those areas where the fluoroelastomer coating normally interacts with paper and fused toner images. Enhanced release of molten toner from the fuser roll can thus result." Col. 1, lines 35-44, and col. 7, lines 21-25. The contact angle to water range of 90 to 95° is within the contact angle ranges recited in instant claims 1, 4, and 12.

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Fuller does not disclose that the contact angle is determined at 25°C as recited in instant claims 1, 4, and 12. Room temperature is generally considered to be a temperature between 20 and 25°C. See Webster's New World Dictionary, 3rd College edition, page 1165. Because there is no disclosure in Fuller to indicate that the contact angle to water is not at room temperature, it is reasonable to presume that the Fuller contact angle to water of 90 to 95° is at 25°C as recited in the instant claims. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Fuller, to use the fuser member disclosed by Fuller as the heat pressure roller in the image forming method disclosed by Onuma, because that person would have had a reasonable expectation of successfully obtaining an image forming member that provides toner images and toner images on preprinted images with no toner offset.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Onuma combined with Fuller as applied to claim 1 above, further combined with US 5,066,558 (Hitake).

Onuma combined with Fuller renders obvious an image forming method as described in paragraph 9 above, which is incorporated herein by reference.

In example 1 of Onuma, the toner further comprises positively chargeable hydrophobic colloidal silica powder. Example 1, col. 35, lines 34-38. The Onuma silica powder meets the limitation "one of the external additives is a metal oxide." The instant specification at page 41, line 15, identifies "silica" as a metal oxide.

Onuma does not disclose the average particle size of said colloidal silica powder. Onuma teaches that the silica powder is externally blended with the toner particles to "improve the charge stability, developing characteristic fluidity, and durability." Col. 23, lines 3-6.

Hitake teaches embedding positively chargeable hydrophobic colloidal silica particles in the surface of positively chargeable magnetic toners, and adding to the resultant silica embedded toner particles positively chargeable hydrophobic colloidal silica particles having a particle size of about $20\text{ m}\mu$, i.e., $0.020\text{ }\mu\text{m}$, such that the particles are not fixed to the toner particles. Example 2 at col. 21, line 65, to col. 22, line 39. The colloidal silica particles having a particle size of about $20\text{ m}\mu$ are within the external additive limitation of "a

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metal oxide having an average particle size of $0.03\ \mu\text{m}$ or less" recited in instant claim 6. According to Hitake, the resultant magnetic toner has good fluidity, and is capable of providing images with high image density without causing fog. The magnetic toner provides good images even when subjected to successive copying to provide a large number of copies. The toner also provides good images with little fog, even after it is left standing for a long period. Col. 3, lines 13-18, and col. 22, lines 40-52.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Hitake, to embed the Hitake positively chargeable colloidal silica particles in the surface of the positively chargeable magnetic toner particles disclosed in example 1 of Onuma as taught by Hitake, and to add to the resultant silica embedded toner particles the Hitake positively chargeable colloidal silica particles having a particle size of about $0.020\ \mu\text{m}$, such that the silica particles are not fixed to the toner particles. It would have also been obvious for that person to use the resultant magnetic toner in the image forming method rendered obvious over the combined teachings Onuma and Fuller, because that person would have had a reasonable expectation of successfully obtaining an image

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forming method that successively provides high image density toner images without fog for a large number of copies.

11. Claims 3, 5, 8, and 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest a heating member as recited in instant claims 3 and 5. Nor does the prior art teach or suggest a toner having the storage elasticity recited in instant claim 1 and further comprising the binder resin recited in instant claims 8 or 9.

As discussed in paragraph 9 above, Fuller teaches a fuser roller comprising a metal roller and a resin layer comprising a heat-curable fluoroelastomer and an aliphatic alcohol, which has a layer thickness ranging from 6 to 8 mils, i.e., 152.4 to 203.2 μm . (One mil is equal to 25.4 μm . See Grant & Hackh's Chemical Dictionary, p. 371.). Fuller does not teach that its resin layer comprises "at least one of phenol resin and melamine resin" as recited in instant claim 3. The layer thickness of 6 to 8 mils is outside the range of 1 to 100 μm recited in instant claim 5.

As discussed in paragraph 9 above, Onuma teaches a toner in example 1 of Onuma that has a visco-elasticity storage modulus G' at 180°C that is within the storage elasticity G' recited in the instant claims. Onuma discloses that the toner in example 1 has a main peak in a molecular weight of 14,000. See Table 1 at col. 43, example 1. However, Onuma does not disclose that binder resin 1 in the toner has a weight average molecular weight (M_w) in the range of 150,000 to 500,000 as recited in instant claim 8, or a ratio of weight average molecular weight (M_w) to number average molecular weight (M_n) in the range of 5 to 10 as recited in instant claim 9. Nor is there enough evidence on the present record for a person having ordinary skill in the art to reasonably presume that the binder resin in the toner in example 1 of Onuma has a M_w and a ratio of M_w/M_n as recited in instant claims 8 and 9, respectively.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLD

Dec. 8, 2004

Janis L. Dote
JANIS L. DOTE
PRIMARY EXAMINER
GROUP 1500